

22



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| 909 | 7590 | 11/17/2004 | EXAMINER | |
| PILLSBURY WINTHROP, LLP P.O. BOX 10500 MCLEAN, VA 22102 | | | LOHN, JOSHUA A | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

22

Office Action Summary

Application No.

09/963,687

Applicant(s)

SRINIVASAN ET AL.

Examiner

Joshua A Lohn

Art Unit

2114

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,12,16-18,20-24,26-38,42,46-48 and 50 is/are rejected.
- 7) ☒ Claim(s) 8-11,13-15,19,25,39-41,43-45 and 49 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *. See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

FINAL REJECTION

Response to Arguments

Applicant's arguments filed 10/19/2004 have been fully considered but they are not persuasive.

With respect to applicant's arguments, relating to claim 1, that Basani discloses a different kind of server group, in which the master server and the name server are the same server, and does not provide them on separate servers, the examiner agrees. However the broadest reasonable interpretation of the claims does not require that they occupy separate server entities.

With respect to applicant's arguments, relating to claim 1, that Basani fails to suggest or teach that all the servers are capable of having a self-monitoring mechanism to ensure a consistent mastership situation, the examiner respectfully disagrees. The voting open state is the resolution of determining a new master, however the collection of leader alive messages are also essential to indicating and maintaining a consistent mastership situation. In the collection of leader alive messages all the servers of the group are involved and this satisfies a reasonable interpretation of the claims. In view of this interpretation the rejection of claim 1, and related claims 3, 21, 23, 32, and 34, remains and is reiterated below.

With respect to applicant's argument, relating to claim 17, that the leader claim messages of Basani are not equivalent to registration messages that are detected by a name server, the examiner respectfully disagrees. The leader claim is an indication that the individual server desires mastership of the group, within the scope of the claim, this is equivalent to a master server registration. The first server to detect the failure operates equivalent to a name server to

Art Unit: 2114

collect any conflicting claims, which are equivalent to the multiple registrations of master servers. In view of this interpretation the rejection of claim 17, and related claims 30 and 47, remains and is reiterated below.

Claim Rejections - 35 USC § 112

Claim 31 recites the limitation "said self-monitoring" in line 2. There is insufficient antecedent basis for this limitation in the claim. A proper correction would read "a self-monitoring", and this is the interpretation used in the following rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7, 12, 16-18, 20-24, 26-38, 42, 46-48, and 50 are rejected under 35 U.S.C. 102(e) as being anticipated by Basani et al., United States Patent 6,748,447, filed April 7, 2000.

As per claim 1, Basani discloses, a method for operating a fault-tolerant server group in client-server distributed dynamic network systems that includes receiving, by a master server in a fault-tolerant server group, a request sent by a client (Basani, col. 8, lines 24-47). Basani also discloses the fault-tolerant server group comprising the master server and at least one back-up

Art Unit: 2114

server (Basani, col. 14, lines 1-65, where the members of the content group act as backup servers). Basani further discloses the master server registering its mastership in a name server (Basani, col. 15, lines 39-48, where the content control manager acts as a name server) and communicating with both the client (Basani, col. 8, lines 31-40) and the at least one back-up server (Basani, col. 15, lines 19-48). Basani discloses every server in said server group, including the master server and the at least one back-up server, having a self-monitoring mechanism, with the self-monitoring mechanism that operates in said master server and said at least one back-up server to ensure that said fault-tolerant server group has a consistent mastership situation (Basani, col. 14, line 10, through col. 15, line 20, where the voting process and all related state machines maintain a consistent mastership situation). Basani discloses processing, by the fault-tolerant server group, the request to produce a result (Basani, col. 8, lines 24-47), with the request being processed concurrently by said master server and said at least one back-up server (Basani, col. 11, lines 8-67, where the shadow copy represents the processing of a backup). Basani also discloses sending, by the master server, the result to the client (Basani, col. 8, lines 40-47).

As per claim 2, Basani discloses determining, by the self-monitoring mechanism, whether multiple master servers exist within the fault-tolerant server group; and restoring a consistent mastership situation in which a sole server serves as said master server in the fault-tolerant server group (Basani, col. 14, line 10, through col. 15, line 20).

As per claim 3, Basani discloses a method for operating a self-monitoring mechanism in fault-tolerant distributed dynamic network systems that includes detecting in a master server and

Art Unit: 2114

at least one back-up server that an inconsistent situation in which more than a desired number of master servers exist; and recovering, if the inconsistent situation is detected by the detecting, from the inconsistent situation to create a consistent situation in which the desired number of master server exists (Basani, col. 14, line 10, through col. 15, line 21).

As per claim 4, Basani discloses that the detection includes identifying a master server that is not a name server master server, wherein the name server master server is a server defined as a master in a name server, the master server that is different from a name server master server causing the inconsistent situation (Basani, col. 14, line 28, through col. 15, line 20, where in a new election no master is defined and multiple leader claims lead to an inconsistent situation that is identified for resolution).

As per claim 5, Basani discloses that the identifying a master server comprises selecting a server whose state indicates that the server is a master (Basani, col. 14, line 28, through col. 15, line 20, where the leader claim represents a master state), determining the server, selected by the selecting, as the master server that causes the inconsistent situation if the server is not a name server master server defined in the name server (Basani, col. 14, line 28, through col. 15, line 20, where the priority claims make a preferred master that will keep the situation inconsistent until voted the group leader), and setting the state of the server as master if the server is the name server master server (Basani, col. 14, lines 10-14, where a list of pre-assigned leaders is checked to help determine master, the list is created by the name server, or content control master, see col. 13, line 51, through col. 14, line 14).

As per claim 6, Basani discloses that identifying a master of a back-up server includes selecting a server whose state indicates that the server is a back-up (Basani, col. 14, lines 10-12,

Art Unit: 2114

where all non-leaders act as back-ups), and determining the master of the server, selected by the selecting, as causing the inconsistent situation if the master of the server is not a name server master server defined in the name server (Basani, col. 14, line 28, through col. 15, line 20, where if in an inconsistent situation the servers vote to determine the new master, or leader, of the server group who will later be referenced in the name server as the group leader).

As per claim 7, Basani discloses that the recovering from the inconsistent situation includes setting the master of a server, identified by either the identifying a master server or the identifying a master of a back-up server, to be a name server master server (Basani, col. 14, line 28, through col. 15, line 20, where the leader resolution results in setting a master, or leader, of the server group that includes the master and all back-ups), synchronizing the state of the server with the state of the name server master server (Basani, col. 15, lines 18-48, where the registration is used to synchronize the state of the server to have the same content group indications as the master server). Basani also discloses terminating the server if said synchronizing is not successful (Basani, col. 15, lines 18-47, where a lack of registration indicates that the server is terminated from the perspective of group membership), and setting the state of said server as a back-up, if said synchronizing is successful (Basani, col. 14, line 10, through col. 15, line 20, where once in a content group all non-leader servers are automatically functioning as back-up).

As per claim 12, Basani discloses triggering a server to perform the detecting (Basani, col. 14, lines 28-30, where a server detects an inconsistent leader situation triggered by the lack of "leader alive" messages).

As per claim 16, Basani discloses reinitializing a time-out mechanism when no inconsistent situation is detected by said detecting (Basani, col. 14, lines 10-30, where the “leader alive” messages reinitialize a time-out mechanism to indicate no inconsistent situation exists).

As per claim 17, Basani discloses a method for operating a name server including detecting multiple registrations of master servers (Basani, col. 14, line 28, through col. 15, line 20, where the multiple leader claims represent multiple master server registrations). Basani further discloses retaining, when multiple registrations of master servers are detected, one master server registration according to a criterion (Basani, col. 14, lines 46-65, where the priority claims generated in the voting are based upon selection criterion).

As per claim 18, Basani discloses that the multiple registrations of master servers use a same server group's name with different server IDs (Basani, col. 14, line 28, through col. 15, line 20, where all leader claims would have the same group name, reflecting their “content group”, but each server would have a different IP address, see col. 15, lines 1-47).

As per claim 20, Basani discloses triggering a self-monitoring mechanism when multiple registrations of master servers are detected (Basani, col. 14, line 28, through col. 15, line 20, where the finite state machine is a self-monitoring mechanism triggered in the event of conflicting leader claims, or master server registrations).

As per claim 21, Basani discloses a fault-tolerant server group in distributed dynamic network systems including a client and a fault-tolerant server group for providing a service to said client (Basani, col. 8, lines 24-47). Basani further discloses the fault-tolerant server group comprising at least one master server and at least one back-up server (Basani, col. 14, lines 1-65, where non-leader members of the content group act as back-up servers). Basani also discloses the master server communicating with the client (Basani, col. 8, lines 31-40), the fault-tolerant server group having a self-monitoring mechanism that operates in said master server and said at least one back-up server to ensure that a consistent mastership situation in the fault-tolerant server group (Basani, col. 14, line 10, through col. 15, line 20). Basani also discloses a name server for registering the mastership of a master server corresponding to the fault-tolerant server group (Basani, col. 15, lines 39-48, where the content control manager acts as a name server to register group master servers, or leaders).

As per claim 22, Basani discloses that the self-monitoring mechanism includes a portion installed on the at least one master server and the at least one back-up server, in the fault-tolerant server group (Basani, col. 14, line 10, through col. 15, line 20, where all servers are involved in the monitoring and voting to maintain a consistent situation).

As per claim 23, Basani discloses a detection mechanism for operation in each of a master serve and at least one back-up server for detecting an inconsistent situation in which more than a desired number of master servers exist and a recovery mechanism for operation in each of a master server and at least one back-up server for recovering, if the inconsistent situation is detected by the detection mechanism, from the inconsistent situation to create a consistent

Art Unit: 2114

situation in which the desired number of master servers exist (Basani, col. 14, line 10, through col. 15, line 21).

As per claim 24, Basani discloses that the detection mechanism includes a trigger that reacts upon an external event to activate the detection mechanism to perform the detecting (Basani, col. 14, line 10, through col. 15, line 20, where the transmission and possible absence of the “leader alive” message is used to trigger the activation of the detecting), a time-out mechanism for generating an activation signal, according to a time-out criterion, to start the detecting (Basani, col. 14, lines 28-30), and a detector for performing the detecting, the detector being activated by either the trigger or the time-out mechanism (Basani, col. 14, lines 28-42).

As per claim 26, Basani discloses that the external event includes when a master server detects the existence of another master server (Basani, col. 14, line 10, through col. 15, line 20, where if a leader, or master, receives a “leader alive” message it will trigger the voting and leader detection mechanisms).

As per claim 27, Basani discloses that the time-out mechanism includes a timer and counts towards the time-out criterion based on the timer (Basani, col. 14, lines 28-65).

As per claim 28, Basani discloses that the detector includes an initializer for initializing a timer, time-out criterion, and self-monitoring state, and a determiner for determining whether a server is involved in said inconsistent situation (Basani, col. 14, line 1, through col. 15, line 21, where the transmission of “leader alive” messages initializes each iteration of the timeout and monitoring mechanisms, and the finite state machine works with the timer and self-monitoring mechanisms to determine an inconsistent situation).

As per claim 29, Basani discloses that the recovery mechanism includes an alignment mechanism for aligning a server with the master server by assigning one of the master servers as the master of the server (Basani, col. 14, line 28, through col. 15, line 20, where the resolution of the master voting assigns a master to each server in the content group). Basani further discloses a synchronization mechanism for synchronizing the state of the server with the state of the one of the master servers, and a state assignment mechanism for assigning the state of the server (Basani, col. 15, lines 18-48, where the registration synchronizes the states of the servers to establish the content group membership and assigns this state to each member).

As per claim 30, Basani discloses a system of a name server that includes a detector for detecting multiple registrations of master servers (Basani, col. 14, line 28, through col. 15, line 20, where the self-checking will detect multiple leader claims that result in multiple servers attempting to register as master). Basani also discloses a correction unit for, when multiple registrations of master servers are detected, retaining only one master server registration (Basani, col. 14, line 28, through col. 15, line 20, where the finite state machine is used to pick a single master server).

As per claim 31, Basani discloses a triggering mechanism for triggering a self-monitoring when multiple registrations of master servers are detected (Basani, col. 14, line 28, through col. 15, line 20, where a self-monitoring is triggered by the “leader alive” message received by a leader, causing an uncertain state).

As per claims 32-38, 42, 46-48, and 50, these claims consist of software code used to implement the methods of the limitations expressed in claims 1-7, 12, 16-18, and 20 respectively. Basani discloses a system that is used to distribute data files, having controls actively interacting with transport-layer and unicast protocols to transmit data packets (Basani, col. 4, line 63, through col. 5, line 14), all of which include software aspects and would use the execution of software program code to allow the necessary interaction and control. Thus the rejections applied to the method of claims 1-7, 12, 16-18, and 20 are also relevant in the software environment and apply in the rejection of claims 32-38, 42, 46-48, and 50 under the same grounds

Allowable Subject Matter

Claims 8-11, 13-15, 19, 25, 39-41, 43-45, and 49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua A Lohn whose telephone number is (571) 272-3661. The examiner can normally be reached on M-F 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAL



SCOTT BADERMAN
PRIMARY EXAMINER